

Practice With Calculator Active Questions

1. Let f be the function given by $f(x) = 3e^{2x}$ and let g be the function given by $g(x) = 6x^3$. At what value of x do the graphs of f and g have parallel tangent lines?
- (A) -0.701 (B) -0.567 (C) -0.391 (D) -0.302 (E) -0.258
2. Which of the following is an equation of the line tangent to the graph of $f(x) = x^4 + 2x^2$ at the point where $f'(x) = 1$?
- (A) $y = 8x - 5$ (B) $y = x + 7$ (C) $y = x + 0.763$
(D) $y = x - 0.122$ (E) $y = x - 2.146$
3. If $f(x) = \sqrt[5]{x^3} - 2x$, then $f'(\sqrt{3}) =$
- A) 0.129 B) 0.902 C) 0.906 D) 1.116 E) 2.173
4. Given: $f(x) = 2\sin x$ on the closed interval $\left[\frac{\pi}{6}, \frac{2\pi}{3}\right]$. For what value of c does $f'(c) = \frac{f(b) - f(a)}{b - a}$?
- A) 1.086 B) 1.336 C) 1.806 D) 2.056 E) None of these
5. For which of the following functions is it true that $f'(x) \geq f(x)$ for $0 < x < 1$?
- A) $f(x) = \sqrt{x}$ B) $f(x) = x^2$ C) $f(x) = x^3$
D) $f(x) = \ln x$ E) $f(x) = \sin x$
6. The function $f(x) = \sin(e^{2x})$ has one real root in the interval $\left[0, \frac{\pi}{4}\right]$. The value of the derivative at this point is
- A) -6.283 B) -2.000 C) -1.000 D) 0.109 E) 0.572